## State of Maine



# RULES RELATING TO THE LICENSURE OF WATER SYSTEM OPERATORS

Board of Licensure of Water System Operators

Department of Health and Human Services 11 State House Station Augusta, Maine 04333-0011

Last Amended: December 27, 2011

#### STATE OF MAINE RULES RELATING TO THE LICENSURE OF WATER SYSTEM OPERATORS

#### **SUMMARY STATEMENT**

These rules are designed to regulate the licensing of operators of water treatment systems and water distribution systems serving the public.

#### **BASIS STATEMENT**

These rules are established to protect the public health by insuring that operators of public water systems are qualified and have knowledge and ability to properly operate and maintain these systems.

#### **AUTHORITY**

22 MSRA § 2628

Last Amended: December 27, 2011

Non-Discrimination Notice
In accordance with Title VI of the Civil Rights Act of 1964, as amended by the Civil Rights Restoration Act of 1991 (42 U.S.C. 1981, 2000e et seq.) Section 504 of the Rehabilitation Act of 1973, as amended (29 U.S.C. 794), the Age Discrimination Act of 1975, as amended (42 U.S.C. 6101 et seq.), Title II of the Americans with Disabilities Act of 1990 (42 U.S.C. 12101 et seq.), and Title IX of the Education Amendments of 1972, the Maine Department of Human Services does not discriminate on the basis of sex, color, national origin, disability or age in admission or access to or treatment or employment in its programs and activities.

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#### **ADMINISTRATION**

#### 1. RULES

A. The Board, in accordance with any other state laws, shall make such rules as are reasonably necessary to carry out the intent of the law.

#### 2. CONSTITUTIONALITY CLAUSE

A. If any section, subsection, sentence, clause, phrase or portion of these rules is for any reason held to be invalid or unconstitutional by the decision of any court of competent jurisdiction, such decision shall not affect the validity of the remaining portions of these rules.

#### 3. APPLICABILITY

- A. The Board shall license persons to serve as operators of public water systems. The types of public water systems which are required to retain licensed operators are identified in the Department of Health and Human Services *Rules Relating To Drinking Water*, 10-144 C.M.R. Chapter 231. It shall be unlawful for any supplier of water so designated to operate a public water system, unless the operator is duly licensed by the Board.
- B. Pursuant to 22 MRSA § 2623, it shall be unlawful for any person to perform the duties of an operator without being duly licensed as required under these rules.

#### **DEFINITIONS**

**AERATION** - The process of adding air to water.

**BOARD** - State of Maine Board of Licensure of Water System Operators.

**CONSECUTIVE SYSTEM** - Any publicly or privately owned Public Water System that purchases or otherwise procures water from another Public Water System and stores and distributes that water for sale.

**COMMISSIONER** - The Commissioner of the State of Maine Department of Health and Human Services or the Commissioner's designee.

**DEPARTMENT** - State of Maine Department of Health and Human Services.

**DIATOMACEOUS EARTH FILTERS** – A process resulting in substantial particulate removal in which a precoat cake of diatomaceous earth filter media is deposited on a support membrane septum, and while the water is filtered by passing through the cake on the septum, additional filter media known as body feed is continuously added to the feed water to maintain the permeability of the filter cake.

**DISTRIBUTION SYSTEM**- A system of pipes and appurtenances by which a potable water supply is distributed to customers.

**DIRECT FILTRATION** – A series of processes including coagulation and filtration, but excluding sedimentation, resulting in substantial particulate removal.

**DISSOLVED AIR FLOTATION** - Process of solids removal wherein dissolved air is added to the clarifier from the bottom of the basin, causing suspended particles to rise to the surface and be removed by skimming

**ELECTRODIALYSIS** - Process where brackish water flows between alternating cation-permeable and anion-permeable membranes. A direct electric current provides the motive force to cause ions to migrate through the membranes and either react to create a gas or remain in a separate solution as brine wastewater.

**HORIZONTAL FLOW -** Flow of water in a horizontal direction through a rectangular or round sedimentation / clarification basin.

**INJECTION MIXERS -** Use of perforated tubes or nozzles to disperse a chemical into the water being treated.

**IN-LINE BLENDER MIXER** - Stationary blender used for coagulant mixing.

**MECHANICAL DEWATERING** - The use of mechanical devices such as belt filter presses, plate filter presses, centrifuges or other rotational mechanisms to force the separation of solids (sludge) from liquids (water).

**MECHANICAL MIXERS** - Paddles, turbines, and propellers used in coagulation facilities.

**OPERATOR** - An individual either employed or retained by a Public Water System, who, as part of their job duties, is assigned the responsibilities for operational activities that will directly impact the quality and/or quantity of water provided to consumers.

**PUBLIC WATER SYSTEM.** Is hereby incorporated by reference as defined in Title 22, Chapter 601, Section 2601 (8) of the Maine Revised Statutes.

**pH ADJUSTMENT -** The alteration of the pH of the raw water, or pre-finished filtered water or for corrosion control by mechanical or chemical procedures, to enhance the performance of the treatment process.

**RECIPROCITY** – Licensing of a person who has passed a written examination in another state and meets the experience and education requirements of these Rules.

**RENEWAL PERIOD-** The period of time between license issue date and the submitted date for renewal or reinstatement of a license.

**REVERSE OSMOSIS -** Passage of water from a concentrated solution through a semi-permeable membrane to fresh water by the application of pressure.

**SCADA INSTRUMENTATION** - Supervisory control and data acquisition system used to monitor and control remote water facility sites.

**SOLID-CONTACT SEDIMENTATION** - Unit which combines the coagulation, flocculation, and sedimentation processes in a single basin which is either rectangular or circular in shape. This process may be either gravity, upflow or pressurized. Flow is through a solids blanket of flocculated, suspended solids or buoyant medium.

**SOLIDS COMPOSTING** - Mixing of sludge with decaying organic material for eventual use as a soil amendment.

**STABILITY OR CORROSION CONTROL** - The removal of dissolved gases or addition of chemicals to render finished water non-corrosive or the addition of chemicals to form a protective coating inside pipes.

**TUBE SEDIMENTATION** - Tubes or inclined plates placed in rectangular or circular sedimentation basins to improve settling efficiency.

**TRAINING CONTACT HOUR (TCH)** – One clock hour of contact: Contact is defined as interaction between a learner and instructor, or between a learner and materials, which have been prepared to facilitate learning. Contact implies two-way communication, in order for the learner to receive feedback, to monitor and assess learning.

**TREATMENT PROCESS AND/OR IN-LINE TREATMENT** - Portion of the drinking water system containing various chemical additions and/or filtration processes, exclusive of transmission or distribution, which alters the physical, chemical, radiological or microbiological quality.

#### WATER SYSTEM CLASSIFICATION

#### 1. CLASSIFICATION

- A. Public water systems shall be classified according to two disciplines Treatment and Distribution.
- B. Public water systems shall be classified as set forth in these rules based on system capacity, source, complexity of treatment, and other physical conditions affecting public water systems.
- C. Systems shall retain an operator or operators duly licensed for Treatment System and Distribution System at the Class level designated for the system.
- D. The Board shall assign classification value points to treatment technologies not listed in the point rating schedule on a case by case basis.
- E. If a treatment system or distribution system will be upgraded in class as a result of changes being made to the system, and the operator of that system does not hold the appropriate license for the upgraded class, the operator must upgrade the license by passing the appropriate level(s) of examination within 90 days of the system upgrade. Failure to pass the appropriate examination will make the operator ineligible to continue to operate the system. The system must then employ a licensed operator or enter into a contractual agreement with a licensed operator of proper classification.

#### 2. PUBLIC WATER SYSTEM CLASSES

A. Treatment classification is determined by a point system, as outlined in Appendix A and Table 1 below:

**Table 1. Treatment Classification** 

Classification	Total Points (From App. A.)	
Very Small Water System (VSWS)	19 or less and serving <500 Pop.	
Class I	19 or less	
Class II	20 to 34	
Class III	35 to 47	
Class IV	48 or more	

B. Distribution classification is based on population served as outlined in Table 2 below.

**Table 2. Distribution Classification** 

Classification	Population Served
Class I	1,500 and less
Class II	1,501 to 15,000
Class III	15,001 to 50,000
Class IV	50,001 and over

#### **OPERATOR LICENSE CLASSIFICATION AND STATUS**

#### A. LICENSE CLASSIFICATION

- 1. There shall be five classifications and two disciplines of operators to parallel the classifications of public water systems.
- Very Small Water System (VSWS) licensed operators shall be considered qualified to supervise and operate a Very Small Water System.
  - (a) Class I-IV Licensed operators may hold licenses in either or both disciplines: treatment and distribution.
  - (b) The classification and discipline of licenses indicate the types of systems they may operate.
  - (c) Operators in responsible charge must hold a license of the proper classification and discipline for which they are responsible.
  - (d) Operators may be in responsible charge of systems in a lower classification than the operator's license.
- 3. There shall be two (2) types of each classification.
  - (a) Full licensure: a person has met all education, examination and experience requirements and is considered qualified to be in responsible charge of a public water system equal to or less than the classification of the license.
  - (b) Operator-in-Training: a person has met the education and examination requirements, but does not meet the experience requirements for the license. An operator with an Operator-in-Training license is not authorized to be in responsible charge of a classified public water system.
    - i. Upon completion of the required experience, an Operator-in-Training may apply to the Board for the full licensure.

ii. The Operator-in-Training will have six years from the date of successful examination to complete required experience. If the experience has not been achieved, the license will expire.

#### **B. LICENSE STATUS**

- A. Active: Operators in an "active" status are in good standing and have maintained their license through training contact hours and payment of fees.
- B. Inactive: Operators in an "inactive" status have not renewed their license within the 60 day grace period from the renewal date. Operators with inactive licenses may not be in responsible charge of a water system.
- C. Expired: Operators that have not renewed their license for two renewal periods are deemed to possess an expired license.

#### LICENSING REQUIREMENTS

- A. License applicants must meet education, examination and experience criteria for full licensure. Operator-in-training status may be granted before work-related experience is achieved. The Board shall grant licenses to persons based upon education, examination, and relevant experience.
- B. An operator whose license has been revoked for disciplinary purposes will not be allowed to sit for an examination for three years from the effective date of revocation.
- C. **Educational Requirements**: All applicants must submit satisfactory evidence of graduation from high school or an equivalency certificate, except as otherwise provided in Section 5, subsection (E)(4) below.

#### D. Examination Requirements

- 1. Applicants must pass an examination for the Class and Discipline for which licensure is sought. The Board may choose to accept examinations in sequential or direct-entry format.
- 2. Exam results will be accepted to apply to license application for two (2) years.
- 3. Applicants who previously held a Maine license may choose examination at the level of license previously held.
- 4. Examinations will be reviewed by the Board to assure adequate subject matter content to cover the fundamentals of operation of a water system relating to the source, pumping, distribution, disinfection, water treatment, public health, administration and appropriate rules applicable to water systems.
- 5. The Board may enter into contracts with third parties for the development, scoring and proctoring of exams. Examination results will be reported to the examinee and the Board. All partners in these contracts must meet the requirements of the Board and other partners.
  - i. The Board will assure the availability of examinations annually.
  - ii. The Board will provide notice of examination application procedures.
- 6. Applicants for licensure must submit proof of satisfactory completion of a Board approved examination.

#### **E. Experience Requirements**

- 1. Applicants must detail experience in public water systems or detail related experience.
- Work experience in a Public Water System is defined as that gained in actual performance of operational activities within any Public Water System.
- 3. Related experience may include, but is not limited to, wastewater treatment plant operations, pilot studies, design, planning, construction and other related technical disciplines.
- Each applicant shall satisfy the experience requirements for the Class of license requested. Education may be substituted for experience as set forth below. Transcripts or other proof of completion must be provided to the Board.
  - Post high school education in approved areas of engineering, science, or related fields: 60 semester hours or equivalent equals 1 year of experience.
  - ii. Specialized training courses will be evaluated on an individual basis.
  - iii. All experience and/or education credentials submitted in support of applications that are not specified in this section shall be evaluated on an individual basis.

#### 5. Full License Requirements

- i. **VSWS Operator:** Six months of experience in a VSWS or higher water system or one year of related experience
- ii. Class I Operator: One year experience in a Class I or higher water system or two years of related experience
- iii. Class II Operator: Two years experience in a Class I or higher water system or four years of related experience
- iv. Class III Operator: Three years experience at a Class I or higher water system or six years of related experience
- v. Class IV Operator: Four years experience in a Class I or higher water system or eight years of related experience.

#### 6. Operator In Training Requirements

Persons with less than the required experience will be granted a license status of Operator-in-Training. Persons will have six years to acquire experience to upgrade to full license status.

#### LICENSING PROCEDURE

#### A. Application for Initial, Upgrade and Operator in Training Licenses

- Application forms for licensure shall be provided by the Board through the Department of Health and Human Services, 11 State House Station, Augusta, ME 04333-0011. Applications must be accompanied by materials supporting education and examination information (see Section 5, subsection (D) above); must be notarized and include payment of fee. Incomplete or illegible applications will be returned to the applicant.
- Application must be made for initial licensure; to upgrade to a higher class of the same discipline; to add a discipline to an existing license or to upgrade from OIT to Full license status.
- 3. Applicant Review: Upon review of the applicant's education, examination and experience the Board shall issue biennial licenses to individuals to perform the duties of operators. The license shall indicate the classification level of the systems or parts of systems for which the individual is qualified to act as an operator and if the licensee is an operator in training.

#### **B. CLASSES OF LICENSE:**

Full and Operator—in-Training Licenses shall be issued in the following classes and disciplines:

a. **Very Small Water System (VSWS):** Restricted: Very Small Water System (VSWS): Restricted: A restricted license issued to any person who qualified for the education waiver approved by the Department in 2007, 2008, 2009, 2010, or 2011. Restricted licenses shall be site specific and non-transferable.

#### b. Class I:

- i. Water Treatment System
- Water Distribution System

#### c. Class II:

- i. Water Treatment System
- ii. Water Distribution System

#### d. Class III:

- i. Water Treatment System
- ii. Water Distribution System

#### e. Class IV:

- i. Water Treatment System
- ii. Water Distribution System

#### C. RECIPROCITY:

The Board may issue a license, upon application, without examination in a comparable classification to any person who holds a license or certificate issued by any state, territory or possession of the United States, or another country, if, in the judgment of the Board, the requirements for licensure of operators of Public Water Systems in that jurisdiction are equivalent to those outlined in these Rules.

#### D. LICENSE PERIOD:

- 1. The initial license period shall be for 2 years, as defined by 22 M.R.S.A. §2625.
- 2. Upgrading a license within a license period does not extend the renewal date.
- 3. The cycle of renewal does not change with late or reinstated licenses.
- 4. Renewals are for a 2-year period.
- E. RENEWAL OF LICENSES applies to standard, operator in training and restricted licenses.
  - The Board shall notify licensed water operators of the date of expiration of that person's license and the fee required for renewal for a two year period. The notice shall be mailed to the person's lastknown address at least 60 days in advance of the expiration date of the license.
  - 2 Licensees are responsible for updating license contact information with any changes within the renewal period.

- 3. Licensees must submit the renewal form together with the a record of completion of Training Contact Hours and the renewal fee no later than 60 days from license expiration date. Licenses that are not renewed by the deadline shall become inactive.
- 4 Applications for license renewal will not be processed before November 1<sup>st</sup> of a biennial renewal period.
- 5. The licensee shall be responsible for providing proof of completion of the required Training Contact Hours (TCH) for their classification of license at the time of renewal. The Board will, at its discretion, verify submitted material for accuracy, applicability and acceptability.
- 6. License holders who allow their licenses to become inactive shall be reinstated upon payment of the reinstatement and renewal fees and upon proof the applicant has completed the required Training Contact Hours (TCH) provision pursuant to Subsection 6(C2) of these Rules.
- 7. Licenses that remain inactive for two years or longer are deemed expired and removed from the master list of licensed operators maintained by the Department. A license holder whose name has been so deleted shall be required to submit an application for initial licensure.

#### F. TRAINING CONTACT HOURS

- 1. Training Contact Hours may be earned as follows:
  - a. One Continuing Education Unit (CEU) equals 10 Training Contact Hours (TCH).
  - b. One college level credit in chemistry, mathematics, biology, engineering or environmental sciences shall be equal to 10 Training Contact Hours (TCH).
  - c. Technical meetings, workshops, seminars, courses and classes as approved by the Board, shall be equal to the amount of hours attended with the maximum credit being 6 Training Contact Hours (TCH) per technical meeting per day. A description of the course,

material covered, institution offering the course and instructor credentials must be submitted to the Board for approval.

- d. Successful completion of self-study educational courses offered by a Technical School, University, or Correspondence School.
- e. Other waterworks seminars and education courses. A description of the course, material covered, institution offering the course and instructor credentials must be submitted to the Board.
- 2. Training shall be relevant. One hour of relevant training equals one Training Contact Hour (TCH). In order for training to be approved by the Board and count as Training Contact Hours (TCH), it must comply with the following criteria:
  - The training shows a direct link to water quality, water supply, or protection of public health; and
  - The training is relevant to managing the operation or maintenance of public water systems; or
  - The training is relevant to the operation or maintenance of public water systems
- 3. Training Contact Hours (TCH) must be earned for the highest license held. Operators holding both a Treatment System and Distribution System license shall be required to complete Training Contact Hours (TCH) for only one category.
- 4. Prior to licensure renewal, the applicant, including holders of restricted VSWS and Operator- in-Training licenses, shall provide proof of completion of the following requirements during the last renewal period:

VSWS	6 Training Contact Hours
Class I	12 Training Contact Hours
Class II	18 Training Contact Hours
Class III	24 Training Contact Hours
Class IV	24 Training Contact Hours

5. Excess Training Contact Hours cannot be carried from one renewal period to the next period.

#### G. FEES

#### 1. Payment:

- a) Checks shall be made payable to the "Treasurer, State of Maine."
- b) Fees shall accompany application for licensure or examination

#### 2. For Licensure

a) Fees are applied per individual not per discipline held.

i. Initial Licensure	<b>\$75</b>
ii. Initial Licensure by Reciprocity	\$75
iii. Upgrade to License	\$20
iv. Biennial Renewal of license	\$75
v. Reinstatement of License	\$50
In addition to past renewal fees	
vi. Status upgrade from Operator-In-Training to Full	\$20

#### 3. For Board Proctored Examinations:

Fees are applied per examination (class and discipline)
Board Proctored Examinations

\$95

4. Fees for non-Board proctored examinations will be established by the proctor and paid directly to the proctor.

#### H. REVOCATION AND SUSPENSION

- 1. The Board may suspend or revoke a license of a certified operator when it is determined that the operator has:
  - a) practiced fraud or deception;
  - b) been negligent when reasonable care, judgment or the application of knowledge or ability was not used in the performance of duties;
  - c) been incompetent or unable to perform the duties of an operator properly; or
  - d) been convicted of a qualifying criminal offense defined in 5 M.R.S.A. §§ 5331-5333.
- 2. Pursuant to 5 M.R.S., Chapter 375, Subchapter 5, the Board may establish a procedure policy by which formal complaints against water operator licensees are accepted and processed.

#### **ADMINISTRATIVE PROCEDURES**

- **A.** The Board shall provide written notice to operators or applicants for licensure of licensing decisions made pursuant to these rules. The notice shall be sent by regular mail and shall include notice of opportunity for appeal in accordance with this section.
- **B.** An operator or applicant for licensure who is aggrieved by a decision of the Board may appeal by filing a written request. The request shall be filed with the Chair of the Board within thirty days of the postmarked date of the written notice of decision from the Board. The request shall specify all issues being raised on appeal. Failure to raise any issue shall be deemed a waiver.
- **C.** The Board shall notify the appellant of the time, place and date of the appeal hearing within thirty days of receipt of the written request for appeal.
- **D.** All hearings and appeals shall be conducted in accordance with the Maine Administrative Procedures Act, Title 5, Chapter 375, Subchapter IV, Sections 9051-9064.

STATUTORY AUTHORITY: 22 M.R.S.A. §§ 2622 and 2628

#### **EFFECTIVE DATE:**

November 17, 1983

#### **EFFECTIVE DATE (ELECTRONIC CONVERSION):**

May 15, 1996

#### **AMENDED:**

January 1, 2000 September 30, 2000 February 5, 2003 - filing 2003-34 June 19, 2004 - filing 2004-214 June 5, 2007 - filing 2007-231 December 27, 2011 - filing 2011-476

#### **NON-SUBSTANTIVE CORRECTIONS:**

March 4, 2003 - cover page address, effective date

## Appendix A

Treatment System Classification Point Values		
Item	Points	
Size ( 2 point minimum to 10 point maximum)		
Maximum population (1 point minimum to 5 points	1 pt per 10,000	
maximum)		
Design flow average (1 point minimum to 5 points	1 pt per MGD	
maximum)		
Water Supply Sources		
Groundwater	3	
Groundwater under the influence of surface water	5	
Surface Water	5	
Chemical Treatment / Addition Processes		
Fluoridation	5	
Disinfection:		
Chlorination	5	
Chloramination	10	
Chlorine dioxide	5	
Ultraviolet light	5	
Ozonation	10	
pH adjustment (calcium carbonate, carbon dioxide,	5	
hydrochloric acid, calcium oxide, calcium hydroxide,		
sodium hydroxide, sulfuric acid, other)		
Stability or corrosion control (calcium oxide, calcium	5	
hydroxide, sodium carbonate, sodium		
hexametaphosphate, other)		
Coagulation & Flocculation Process		
Chemical addition (aluminum sulfate, bauxite, ferrous		
sulfate, ferric sulfate, calcium oxide, bentonite, calcium	1 pt per chemical	
carbonate, carbon dioxide, sodium silicate, other)	coagulant added	
	(5 points max.)	
Rapid mix units:		
Mechanical mixers	3	
Injection mixers	2	
In-line blender mixers	2	
Flocculation tanks:		
Hydraulic flocculators	2	
Mechanical flocculators	3	
Clarification / Sedimentation Process		
Horizontal Flow (rectangular basins)	5	
Horizontal Flow (round basins)	7	
Solid-contact	15	
Inclined-plate, tube	10	
Dissolved air flotation	30	
Filtration Process		

Single media filtration	3
Dual or mixed media filtration	5
Microscreens	5
Diatomaceous earth filters	5
Cartridge filters	J
As pre-filter to another process	2
As microbiological removal	5
Slow sand filters	5
Direct filtration	5
Pressure or greensand filtration	5
Other Treatment Processes	J
Aeration	2
	<u>3</u> 5
Packed tower aeration	<u> </u>
Ion exchange / softening (Cation, Anion, Adsorptive)	_
To control Primary MCL contaminant	5
To control secondary MCL contaminant	2
Lime - soda ash softening	5
Membrane filtration- reverse osmosis, micro,ultra,nano	10
Powdered activated carbon	5
Other Processes	0 to 15
Residuals Disposal	
Discharge to lagoons	5
Discharge to lagoons and then raw water source	8
Discharge to raw water	10
Disposal to sanitary sewer	3
Mechanical dewatering	5
On-site disposal	5
Land application	5
Solids composting	5
Facility Characteristics	
Instrumentation:	
The use of SCADA or similar instrumentation to provide	0
data with no process operation	
The use of SCADA or similar instrumentation to provide	2
data with limited process operation	
The use of SCADA or similar instrumentation to provide	4
data with moderate process operation	
The use of SCADA or similar instrumentation to provide	6
data with extensive or total process operation	
Gravity Fed Systems	
Total atmospheric storage less than average day	5
design flow	